REMARKS

The Office Action dated November 8, 2010 has been reviewed and carefully considered. Claims 9, 10, 12, 15 and 17 have been amended herein. Claim 18 has been cancelled without prejudice or disclaimer of subject matter. New claim 21 has been added. Accordingly, claims 1 and 4-17, and 19-21 are now pending, the independent claims being claims 15, 17 and 21. Reconsideration of the above-identified application, as amended and in view of the following remarks, is respectfully requested.

Applicants note with appreciation the indication that claims 5-9 would be allowable if rewritten so as not to depend from a rejected claim, and with no change in scope. Claim 21 has been added to the application, rewriting claim 5 as suggested by the Office Action (and with non-limiting claim language from intervening claims being omitted). Accordingly, it is now believed to be in condition for allowance.

Claims 15, 17 and 18 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the claim language "selecting the dimmed brightness level in dependence on … a number of occurrences … above the dimmed brightness level" is deemed an "inappropriate recursive format" in Paragraph 3 of the Office Action. In essence, the examiner is saying you cannot count the number of occurrences unless the dimmed brightness level is known.

Applicant had previously argued that this method of setting a threshold is well-known -- that one may, for example, set various "temporary" thresholds, perform the resulting counts, and then set a "permanent" threshold at the threshold value which yields a count that is optimum based on some criteria. In particular, the application specifically addresses use of minimizing an error function (e.g., claims 19 and 20). Use of such error functions are well-known in the art as being just one example of determining a threshold value by analyzing results obtained by varying (temporary) threshold values. In such an analysis, the (determined) threshold is not "known" while the analysis is being performed.

In the interests of furthering prosecution, Applicants have amended independent claims 15 and 17 to specifically recite that temporary dimmed brightness levels are used in selecting a dimmed brightness level. Support for this feature is found, *inter alia*, in paragraphs [0039] and [0040] of the published application which state:

> [0039] ... The dimmed brightness level Lbdim and the corresponding gray level x_1 may be determined dynamically for subsequent images (or per region of each of the subsequent images in case a multiple lamp backlight unit BL2 is applied). If an image contains both pixels with gray levels above x_1 and below x_{thres}, deterioration of the displayed image is inevitable and a compromise is necessary. In order to quantify the perceived deterioration of the displayed image, an error function is applied which corresponds to the amount of deterioration of the displayed image. **By selecting for each image a dimmed brightness level Lbdim which results in a minimum value of this error function, the deterioration is minimized** [emphasis added].

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[0040]The error function includes a number of occurrences of gray levels x corresponding to a brightness level L above the dimmed brightness level Lbdim and/or a number of occurrences of gray levels x corresponding to a brightness level L below a predetermined brightness level, which preferably corresponds to the minimum brightness level Lbdim/CR. An embodiment of the error function $E_{Tot}(x_1)$ is given by the formula ...

... **$E_{tot}(x_1)$ is the error as a result of selecting the dimmed brightness level Lbdim corresponding to a gray level x_1.**

As referenced in the above quotation, a gray level x_1 varies in dependence on a variable Lbdim. The resulting error function values are then used to select the dimmed brightness level, Lbdim. Applicants submit that this description of the invention contained in the specification supports the amendments to claims 15 and 17, wherein "temporary" dimmed brightness levels are used in the selection of a dimmed brightness level.

Claims 1, 10, 11 and 14-18 stand rejected under 35 U.S.C. §102(b) as being anticipated by Park, U.S. Pat. Publ. No. 2002/0130830 (hereinafter, "Park"). Claims 4 and 19 and 20 stand rejected under 35 USC §103(a) as being unpatentable over Park in view of Nitta et al., U.S. Pat. Publ. No. 2002/0027551 (hereinafter, "Nitta"). Claims 12 and 13 stand rejected under 35 USC 103(a) as being unpatentable over Park in view of Usul et al., EP 0513551 (hereinafter "Usul").

Applicants respectfully disagree with, and explicitly traverse, the Examiner's reason for rejecting the claims.

Claim 15, as amended, recites:

15. Method of adjusting a light source of a display device, the display device comprising a display panel having display pixels for modulating light originating from the light source; and processing circuitry coupled to the display panel and the light source, the processing circuitry having an input for receiving an input signal representing gray levels of pixels of an image to be displayed on the display panel, the method comprising:
-       selecting a dimmed brightness level of the light source in dependence on the gray levels of the image pixels, the selecting step comprising:
        selecting the dimmed brightness level from a plurality of temporary dimmed brightness levels, said selecting in dependence on: (i) a number of occurrences of a gray level corresponding to a brightness level of display pixels above the temporary dimmed brightness levels, and/or (ii) a number of occurrences of a gray level corresponding to a brightness level of display pixels below a predetermined brightness level being a fixed or adjustable level determined in dependence on the temporary dimmed brightness levels, and
-       adapting the input signal in dependence on the dimmed brightness level.

The "first part" of the "and/or" construction above defines a dimming of the backlight to a particular brightness. This particular brightness is called the dimmed brightness level and is selected in dependence on <u>a number of gray levels above a dimmed brightness level</u>. This clearly differs from the teachings of Park wherein numbers of high and low gray data are compared and a dimmed brightness level (temporary or otherwise) is not used.

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The second part of the "and/or" construction of claim 15 defines that the dimmed brightness level is selected in dependence on the number of gray levels below a fixed or adjustable level determined in dependence on the number of gray levels below a fixed or adjustable level determined <u>in dependence on a dimmed brightness level</u>. This feature of claim 15 is also patentable over Park because Park does not disclose that the low or high gray level depends on the dimmed brightness level of the backlight.

Applicants submit that Park discloses in paragraph [0002] an LCD with an adaptive luminance intensifying function for modifying the luminance of a back light according to images provided. According to paragraph [0031] – [0035], the data determiner checks a gray level of the input R image data. A first counter counts the number of high gray level R data and a second counter counts the number of low gray level R data. If the number of high gray levels is higher than the number of low gray levels, a high driving voltage is supplied to the backlight inverter. If the number of high gray levels is lower that the number of low gray levers, a normal driving voltage is supplied to the backlight inverter.

In paragraph [0036] Park discloses that low gray data is converted into lower gray data if the high ("normal" is erroneously disclosed) driving voltage is supplied so as to compensate of the increase of the backlight.

It has to be noted that Park counts the number of high gray levels and the number of low gray levels. While both high and low are not explicitly defined, it is clearly not

disclosed that these levels depend on the selected luminance of the backlight. Rather, the backlight is switched between normal and high luminance dependent on which number of the gray levels is the highest. Moreover, the criteria of determining what is "high" or "low" is not disclosed as being dependent upon the dimmed brightness level.

A claim is anticipated only if each and every element recited therein is expressly or inherently described in a single prior art reference. Park cannot be said to anticipate the present invention, because Park fails to disclose each and every element recited. As shown, Park fails to disclose various limitations recited in claim 15. Independent claim 17 contains features similar to those of claim 15 and is deemed patentable for at least the same reasons.

With regard to claims 1, 4-14 and 16 and 18-20, these claims ultimately depend from one of the independent claims, which have been shown to be not anticipated and allowable in view of the cited references. Further, applicants submit that the additional references of Nitta and Usul fail to cure the infirmities of Park in that neither reference teaches or suggests determining the number of occurrences of a gray scale level relative to dimmed brightness levels, as recited in either independent claim 15 or 17. Accordingly, claims 1, 4-14 and 16 and 18-20 are also patentable over the applied prior art. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In particular, with respect to claims 4, 19 and 20; Paragraph 8 of the Office Action argues that Fig. 6C of Nitta teaches the minimization of an error function where "weighted numbers of occurrences" are employed, as recited in claims 4, 19 and 20. Applicants submit that Nitta teaches use of variable resistors to attain a resistance-dividing ratio in a manner that "the brightness difference is increased at the low gray-scale, and it is reduced at the high gray scale" (paragraphs [0070] & [0071]). Further, Fig. 6C is described in the specification as:

> [0075] FIG. 6C is a graph showing a setting mode in which the relationship between the input display data 84 and the actual display brightness is linear. The setting is made so that each resistance-dividing ratio is higher in the vicinity of a S-shaped curve shown in FIG. 4.

Applicants fail to see how this aspect of Nitta relates to an error function that is minimized. What in particular is the function being analyzed? The mere transformation of curves 6A or 6B "to reach the desired grayscale as shown in Fig. 6C" (Office Action, page 8 at end of last full paragraph) doesn't teach that an error function is employed and is being minimized in a manner employing weighted numbers of occurrences – as is recited in claims 4, 19 and 20.

Applicants deny any statement, position or averment stated in the Office Action that is not specifically addressed by the foregoing. Any rejection and/or points of argument not addressed are moot in view of the presented arguments and no arguments are waived and none of the statements and/or assertions made in the Office Action is conceded.

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For all the foregoing reasons, it is respectfully submitted that all the present claims are patentable in view of the cited references. A Notice of Allowance is respectfully requested.

Respectfully submitted,

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